

1/3 022 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--NEW COMET DISCOVERED IN USSR -U-  
AUTHOR--BRONSHTEIN, V.A. *B*  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, ZEMLYA I VSELENNAYA, NO 2, 1970, PP 57-58  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS  
TOPIC TAGS--COMET, COORDINATE, STELLAR MAGNITUDE, PHOTOGRAPHY  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/1393 STEP NO--UR/0384/70/000/002/0057/0058  
CIRC ACCESSION NO--AP0125041  
UNCLASSIFIED

2/3 . 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125041

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON 23 OCTOBER 1969 K. I. CHURYUMOV, A SPECIALIST IN THE ASTRONOMY DEPARTMENT AT KIEV STATE UNIVERSITY, IN EXAMINING PLATES TAKEN IN SEPTEMBER OF THAT YEAR BY AN EXPEDITION OF THE DEPARTMENT OPERATING AT THE ASTROPHYSICS INSTITUTE ACADEMY OF SCIENCES KAZAKH SSR WITH A 50 CM TELESCOPE, DISCOVERED A NEW COMET. THE COMET WAS DETECTED ON A NEGATIVE OBTAINED ON 11 SEPTEMBER WHILE OBSERVING THE COMAS SOLA COMET WHICH AT THAT TIME WAS IN THE CONSTELLATION GEMINI. THE NEW COMET WAS 2DEGREES LOWER THAN THE COMAS SOLA COMET AND BY CHANCE HAD APPROXIMATELY THE SAME DIURNAL MOTION AND THEREFORE IT STOOD OUT BY S. I. GERASIMENKO, WHEREAS THE COMET WAS DETECTED ON THE PLATE BY K. I. CHURYUMOV; IT WAS THEREFORE CALLED THE CHURYUMOV-GERASIMENKO COMET AND DESIGNATED 1969H. COORDINATES WERE COMMUNICATED TO THE INSTITUTE OF THEORETICAL ASTRONOMY WHERE M. YA. SHMAKOV COMPUTED THE ORBIT AND EPHEMERIS. THE COMET WAS STELLAR MAGNITUDE 12 (2 PRIMEM BRIGHTER THAN THE COMAS-SOLA COMET), HAD A CONSIDERABLE COMA AND INDICATIONS OF THE WEAK BROAD TAIL, ORIENTED ALMOST PERPENDICULAR TO THE SUN (THE TAIL WAS ABOUT 1 FOOT LONG). LATE IN OCTOBER IT DEPARTED FROM GEMINI AND ENTERED LEO, WEAKENING TO 14 PRIMEM. THE COMET 1969H IS A NEW SHORT PERIOD COMET OF THE JUPITER FAMILY. ITS PERIOD OF REVOLUTION IS 6.6 YEARS; THE SEMIMAJOR AXIS OF THE ORBIT IS 3.51 A.U.; ORBITAL INCLINATION TO THE ECLIPTIC IS 7DEGREES. ORBITAL ECCENTRICITY IS 0.634 AND DISTANCE FROM THE SUN AT PERIHELION WAS 1.285 A.U. THE COMET PASSED THROUGH PERIHELION ON THE DAY OF ITS DISCOVERY, 11 SEPTEMBER. THE TAIL IS 10 FEET LONG.

UNCLASSIFIED

3/3 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125041

ABSTRACT/EXTRACT--IT IS THE FIRST COMET TO BE DISCOVERED BY SOVIET  
ASTRONOMERS IN 12 YEARS.

UNCLASSIFIED

USSR

EL'PINER, I. Ye., and BRONSKAYA, L. M., Institute of Biological Physics,  
Academy of Sciences USSR, Pushchino, Moscovskaya Oblast

"Effect of Ultrasound Waves on the ATP-ases of Cytoplasm Membranes"

Moscow, Biofizika, Vol 15, No 5, Sep/Oct 70, pp 852-856

Abstract: An aqueous suspension of cytoplasm membranes isolated from the rat liver by the method of M. Takeuchi and H. Terayama was subjected to the action of ultrasound waves with a frequency of 750 kc and an intensity of 8-10 w/cm. After the action of ultrasound for 30 min, the membrane fragments had an  $Mg^{++}$ -dependent ATP-ase activity that was lower than the corresponding activity of the intact membranes before treatment with ultrasound and an NaK-ATP-ase activity that was higher by 25-30%. On treatment of the membranes with ultrasound for 60 min, both ATP-ase activities were lower than those of the intact membranes. In membrane fragments that remained in the supernatant liquid after centrifuging (at 18,000 g) a suspension treated with ultrasound, the  $Mg^{++}$ -ATP-ase activity was retained while the NaK-ATP-ase activity was entirely absent. The 5'-nucleotidase activity was retained after prolonged treatment of the membrane suspension with

1/2

USSR

EL'PINER, I. Ye., and BRONSKAYA, L. M., Biofizika, Vol 15, No 5, Sep/Oct 70, pp 852-856

ultrasound waves (120 min); it even increased with increasing lengths of the time of treatment in the 0-120 min range. In interpreting the shifts in ATP-ase activity that were observed, the effect of ultrasound in splitting off sialic acids from the lipoprotein complex that functions as carrier of enzyme activity must be considered.

2/2

- 4 -

1/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--AMINE OXIDASE ACTIVITY IN CYTOPLASMIC MEMBRANES AND NUCLEI OF LIVER  
CELLS -U-  
AUTHOR--(04)--AITOVA, E.A., BRONSKAYA, L.M., GORKIN, V.Z., ELPINER, I.YE.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 176-183  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--LIVER, CYTOPLASM, CELL MEMBRANE, AMINE, OXIDASE, ISOVIAZID  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1986/0802 STEP NO--UR/0301/70/016/002/0176/0183  
CIRC ACCESSION NO--AP0102765  
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102765

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN CYTOPLASMIC MEMBRANCE AND NUCLEI OF RAT LIVER CELLS AMINE OXIDASE ACTIVITY IS FOUND; TYRAMINE, SEROTONIN, HISTAMINE AND LYSINE ARE READILY DEAMINATED. IN RAT LIVER NUCLEI DEAMINATION OF ADENOSINE,5-MONOPHOSPHATE (AMP) IS ALSO NOTED. IN "MIXED SUBSTRATES" EXPERIMENTS COMPETITION BETWEEN SEROTONIN AND LYSINE IS OBSERVED; THE PHENOMENON IS NOT, HOWEVER, RECORDED IF ONE OF THESE SUBSTRATES IS SUBSTITUTED FOR AMP. DEAMINATION OF SEROTONIN BY AMINE OXIDASES FROM RAT LIVER NUCLEI IS PARTIALLY INHIBITED BY PARGYLINE (BUT NOT BY ISONIAZID). AMINE OXIDASE ACTIVITY IS PRESENT IN RAT LIVER CYTOPLASMIC MEMBRANES AND CELL NUCLEI DESTRUCTED BY SONICATION (ESPECIALLY IN NITROGEN ATMOSPHERE). SONICATION OF SUSPENSIONS OF PREVIOUSLY LYOPHYLIZED PREPARATIONS OF CYTOPLASMIC MEMBRANCE PRODUCES AMINE OXIDASE ACTIVITY CONTAINING PARTICLES WHICH ARE NOT SEDIMENTED IN ULTRACENTRIFUGE WITHIN 90 MIN AT 105,000 G.

UNCLASSIFIED

172 026 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--MODIFIED ASYMPTOTIC EXPANSIONS FOR THE NEAR FIELDS OF ANTENNAS -U-  
AUTHOR--(02)-KINBER, B.YE., BRONTVEYN, M.D. *B*  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VUZ. RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, MAY 1970, P.  
905-913  
DATE PUBLISHED---MAY70  
  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS  
TOPIC TAGS--ASYMPTOTIC EXPANSION, ANTENNA ACTIVE ELEMENT, ANTENNA  
EFFECTIVE APERTURE, ANTENNA MAIN LOBE, ANTENNA SIDE LOBE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/0356 STEP NO--UR/0109/70/015/000/0905/0913  
CIRC ACCESSION NO--AP0124113  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124113

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. CONSTRUCTION OF MODIFIED ASYMPTOTIC EXPANSIONS OF THE FIELD OF A COPHASED TWO DIMENSIONAL ANTENNA, APPLICABLE BOTH IN THE NEAR AND FAR ZONES INCLUDING IMMEDIATE PROXIMITY TO THE APERTURE. FIELD CALCULATIONS ARE MADE IN THE SIDELobe REGION, IN THE MAIN LOBE REGION, AND IN THE PROJECTED BEAM REGION (WHERE RAYS ARE PARALLEL) FOR A UNIFORM DISTRIBUTION IN THE APERTURE, FOR A DISTRIBUTION DROPPING TO ZERO ACCORDING TO A COSINE LAW, AND FOR TWO POINT SOURCES. THE PROPOSED METHOD CAN BE GENERALIZED TO CASES OF ANTENNAS WITH FIELD DISTRIBUTIONS WHICH ARE NOT IN PHASE AND TO THREE DIMENSIONAL CASES (LINEAR ANTENNAS AND ANTENNAS WITH A CIRCULAR APERTURE).

UNCLASSIFIED

~~EQUIPMENT~~  
Aeronautical

USSR

UDC: None

ABRAMOV, Ye. I., BROTSKIY, A. N., BURTSEV, V. A., ZATOLOKIN, A. S.,  
ZUBKOVA, T. I., and SMIRNOV, N. P.

"Hydraulic Damper for an Aircraft Flutter Model"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye  
znaki, No 27, 1971, p 119, No (11)351001

Abstract: The body of this device contains a rotor with a controlling valve and a charge-compensating device. By having this device in the form of an elastic membrane which converts into a sealing ring between the body and a hood filled with a transparent material, the size and weight of the damper can be reduced. A cross sectional drawing of the device is shown.

1/1

Acc. Nr: **0046734** Abstracting Service: **4-70** Ref. Code:  
**A70-20694** INTERNAT. AEROSPACE ABST. **4R0694**

**A70-20694 #** Dynamic instability of flexural and torsional vibrations of a rotor with a mass distributed along the shaft axis (Dinamicheskaya neustoiichivost' izgibno-krutil'nykh kolebaniy rotora s massoi, raspredelennoi vdol' osi vale). Ch. Broniarek. In: Machine dynamics (Dinamika mashin). (A70-20693 08-15) Edited by S. N. Kozhevnikov. Moscow, Izdatel'stvo Mashinostroenie, 1969, p. 74-81. 8 refs. In Russian.

Analysis of the nonlinear flexural and torsional vibrations of a rotating rotor with a mass distributed along the shaft axis. The translational motion of the rotor is described in a Cartesian inertial coordinate system, one of the axes of which coincides with the axis of the shaft in the unloaded state. The spherical motion with respect to the geometrical center is described by Réal coordinates. The ranges of dynamic instability of the rotor vibrations are determined on the basis of the Hamilton variational principle. These ranges are studied as functions of the rotor rotation speed and the gyroscopic effect in the case of direct and inverse precessions.

A.B.K.

*EB.*

REEL/FRAME  
**19790038**

18

USSR

UDC 621.9.025:669.15'25'27-192

ISAYEV, A. I. and GELLER, Yu. A., Doctors of Technical Sciences, Professors,  
and KIRILLOVA, O. M. and BROSTREM, V. A., Candidates of Technical Sciences

"Dispersion-Hardened Tool Alloys for Processing of High-Strength Structural  
Materials"

Moscow, Vestnik Mashinostroyeniya, No 1, Jan 71, pages 53-57

Abstract: The properties of various types of dispersion-hardened steels have been studied, resulting in recommendation of type V18M7K25 and V18M4K25 alloys containing molybdenum for the manufacture of tools. The cutting properties of these alloys were studied under continuous and intermittent cutting conditions. The influence of heat treatment modes on the properties of the alloys were studied. The investigations showed that a change in hardening temperature between 1250 and 1300°C has no significant influence on the strength and cutting properties of the alloy. The tempering temperature is more significant in this respect. It is established that the maximum strength of cutting tools of V18M7K25 alloys for continuous turning of high strength materials is provided by hardening from 1275-1300°C with subsequent tempering

1/2

USSR

ISAYEV, A. I., et al., Vestnik Mashinostroyeniya, No 1, Jan 71, pages 53-57

at 600°C for 2 hours. The hardness of the cutting portion of the tools in this case will be HRC 68-69. Studies have shown that the most effective area of utilization of these tool alloys is in the working of alloys of titanium, austenitic high-manganese and high-strength steels.

2/2

- 86 -

USSR

UDC 543.544

ERISTAVI, D. I. (Deceased), BROUCHEK, E. I., ERISTAVI, V. D., PERISHVILI, L.A., KAKABADZE, A. G., and KUTSIAVA, N. A., Georgian Polytechnical Institute Imeni V. I. Lenin, Tbilisi

"Investigation of the Uranyl ion Sorption on the Anion Exchange Resins Saturated With Anionic Ligands"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 5, May 72, pp 1165-1167

Abstract: Using the roentgenographic method, the sorption of uranyl ions from aqueous solutions with pH = 2.5-3.0 on fluoride, carbonate, and ethylenediaminetetraacetate forms of anion exchange resins has been shown to take place. On the basis of the results of IR spectroscopic studies the following stages were proposed for the formation of anionic complexes of uranyl in anion exchange phase: 1) formation of a neutral complex of uranyl with the anionic ligand; 2) association of this complex with anionic ligand in the ion exchange phase, and 3) formation of an ionic pair "anion complex-cation group R<sup>+</sup> from the anion exchange resin". Starting sorption curves were plotted for different hydrodynamic conditions and from them the values of dynamic sorption capacities for uranium of the anion exchange resin AN-2Fg, AV-16, and AV-17 have been determined, establishing effectiveness series of the sorbents studied.

1/1

USSR

UDC 533.652/.661.013

BROUDE, B. G.

"Aerodynamic Studies of a Balloon-Crane Combinations"

V sb. Tr. 4-kh chteniy, posvyashch. razrabotke nauch. naslediya i razvitiyu idey K. E. Tsiolkovskogo, 1969. Sekts. "Aviatsiya i vozdukhoplavaniye" (Works of the 4th Readings Concerning the Development of the Scientific Heritage and the Ideas of K. E. Tsiolkovskiy, 1969. Section "Aviation and Aeronautics"), Moscow, 1971, pp 30-40 (from RZh-Mekhanika, No 12, Dec 71, Abstract No 12B468)

Translation: Measurements of the drag, aerodynamic lift, longitudinal moments, and center of pressure of several models of balloon-cranes are presented that were obtained in a wind tunnel at a flow rate of about 100 km/hr and at angles of attack from  $-4^{\circ}$  to  $+22^{\circ}$ : spindlelike balloons of single and coupled in parallel and at an angle of  $60^{\circ}$  and a toroidal balloon with an open and closed central opening. The tests were conducted in a free flow around a screen simulating the ground and close to models of structural objects. It is shown that in a free flow the lift and resistance of all balloons increases with the increase in angle of attack (up to a critical angle) and that in the presence of

1/2

USSR

BROUDE, B. G., Tr. 4-kh chteniy, posvyashch. razrabotke nauch. naslediya i razvitiyu idey K. E. Tsiolkovskogo, 1969. Sekts. "Aviatsiya i vozdukhoplavaniye", Moscow, 1971, pp 30-40

a stabilizer they are stable. The greatest effect of the ground appeared under direct proximity of the balloon to it. At large positive angles of attack there was observed the effect of "air cushion"; at small positive and negative angles the balloon experienced induction toward the earth and became unstable. In paired and toroidal balloons both the aerodynamic lift and the drag were 2-3 times higher than in a single spindlelike balloon. B. I. Bakum.

2/2

- 20 -

Optics & Spectroscopy

USSR

UDC 535.34-15 : 548.0

BROUDE, V. L., and SHIROKOV, A. A.

"Anomalous Exciton Splitting in Vibrational Spectrum of Naphthalene Crystal in  $3000\text{ cm}^{-1}$  Region"

Leningrad, Optika i Spektroskopiya, Vol 34, vyp 2, Feb 73, pp 408-410

Abstract: The article considers the vibrational spectrum of naphthalene single crystal in the region of the band doublet  $3055$  and  $3069\text{ cm}^{-1}$ . Absorption curves are shown for two polarizations of incident light at  $90^\circ\text{ K}$ . The doublet is transformed into a quadruple of sharply polarized absorption bands ( $3050$  and  $3070\text{ cm}^{-1}$  at  $\parallel b$  and  $3056$  and  $3065\text{ cm}^{-1}$  at  $\perp b$ ). Such polarization indicates the occurrence of Davydov exciton splittings in the spectrum of the crystal. The naphthalene crystal has two translationally nonequivalent molecules in the unit cell. Therefore, there has to be a comparison of each nondegenerate molecular term and the exciton band doublet in the spectrum of the crystal. Since both absorption bands of the molecule ( $3055$  and  $3069\text{ cm}^{-1}$ ) are related to the same symmetry and have almost the

1/2

USSR

BROUDE, V. L., and SHIROKOV, A. A., Optika i Spektroskopiya, Vol 34, vyp 2, Feb 73, pp 408-410

same intensity, the character and the form of the exciton doublets corresponding to them should be identical in the absence of mutual perturbations. Actually, the polarization of the bands indicates different splitting signs in both doublets (3050/3056 and 3070/3065  $\text{cm}^{-1}$ ). This apparently indicates that we are dealing with the case  $\Delta_D \sim \Delta$ , in which mutual perturbation of the two adjacent exciton bands is especially significant.

2/2

USSR

UDC: 535.373.2

BROUDE, V. L., DOLGANOV, V. K., SLOBODSKOY, F. V., SHEKA, Ye. F., Institute of Solid State Physics, Academy of Sciences of the USSR

"Exciton-Phonon Interaction and Energy Transfer in a Benzene Crystal and in Isotopically Admixed Deuterobenzene Crystals"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 2, Feb 73, pp 311-317

Abstract: The paper presents the results of studies done at 4.2-20°K on exciton-phonon and vibron-phonon absorption and luminescence spectra of a benzene-d<sub>0</sub> crystal and an isotopically admixed crystal of d<sub>0</sub>-benzene in d<sub>6</sub>-benzene. The energy of interaction between electron and vibron excitations on the one hand and phonons on the other hand is determined, as well as the probabilities of the corresponding phototransitions. The energy transfer between the dopant molecules is determined in the isotopically admixed crystal. The authors thank Ye. M. Rodina for doing the computer calculations.

1/1

USSR

BROUDE, V. L., DOLGANOV, V. K., Institute of Solid State Physics of the Academy of Sciences USSR, Chernogolovka

"Exciton-Phonon Interaction in Benzene Crystals"

Leningrad, Fizika Tverdogo Tela, Vol. 14, No 1, Jan 72, pp 274-277

Abstract: Exciton-phonon absorption which accompanies electron transitions of a benzene crystal was measured. The authors obtained the spectral distribution of the absorption coefficient close to the purely electron molecular transition  $A_{1g} \rightarrow B_{2u}$ , the vibron transition  $A_{1g} \rightarrow B_{2u} \cdot E_{2g}$ , and the transition close to the purely electron transition  $A_{1g} \rightarrow B_{2u}$  of the admixture of hexodeuterobenzene in the benzene crystal. The transitions to these states were selected because exciton zones of different widths correspond to them in the crystal: for the  $B_{2u}$  level in the pure crystal it is approximately  $64 \text{ cm}^{-1}$ ; i.e., of the same order as the frequency of optical phonons; for the vibron level  $B_{2u} \cdot E_{2g} \leq 5 \text{ cm}^{-1}$ , which is considerably less than the frequency of optical phonons; and the still narrower zone is compared to electron transition in the admixture. Exciton-phonon absorption close to purely electron absorption was, as expected, very similar to absorption close to the vibron band. The exciton-phonon absorption was stronger as the  $1/2$

USSR

BROUDE, V. L. and DOLGANOV, V. K., Fizika Tverdogo Tela, Vol 14, No 1, Jan 72, pp 274-277

band of the corresponding component of the exciton triplet was stronger, but weaker the further away it moved from the exciton-phonon spectrum. The general form of this spectrum resembles exciton-phonon absorption of the admixture, and this is associated with the fact that for a relatively wide exciton zone of the benzene crystal the half-width of the density functions of the states in it is only 10-12  $\text{cm}^{-1}$ . Where absorption is caused basically by transitions with generation of acoustical phonons, the spectra of the admixture and the pure crystal are highly different if they are compared for the same polarizations of the incident light. This again emphasizes the considerable dependence of the probability of exciton-phonon transitions with the participation of acoustical phonons on the wave vector. The authors comment that the results obtained in this study can be qualitatively understood on the basis of existing theoretical ideas but that an explanation of the fine-line features of the spectrum and their quantitative interpretation require direct calculations using dispersion relationships in exciton and phonon zones, and they hope that the results of this study may provide the basis for calculations of this type.

2/2

- 52 -

Crystals & Semiconductors

USSR

BROUDE, V. I., LEYDERMAN, A. V., and TRATAS, T. G., Institute of Solid State Physics of the Academy of Sciences USSR, Chernogolovka

"Energy Spectrum of Isotopically Mixed Naphthalene Crystals"

Leningrad, Fizika Tverdogo Tela, No 12, Dec 71, pp 3624-3632

Abstract: Data on the absorption spectra of isotopically mixed naphthalene-hg-naphthalene-dg crystals are analyzed. It has been recently established that a fine structure connected with the formation of clusters and complicating analysis of experimental data from the aspect of impurity exciton states is observed in the spectra of isotopically mixed molecular crystals, particularly in the spectra of mixtures of deuterioisotopes of naphthalene. On the other hand, there have been several theoretical studies of similar isotopic mixtures both on the basis of a simplified model picture or specific ordered distribution of the impurity, and on the basis of a calculation using Green's functions. This complicated situation required a detailed analysis of experimental and theoretical data in order to make a reasonable comparison between them, and an attempt is made to do this in this article. The isotopically mixed molecular single crystal, the mixture of naphthalene-hg and naphthalene-dg, is a typical example of an unordered

1/3

USSR

BROUDE, V. L., et al., Fizika Tverdogo Tela, No 12, Dec 71, pp 3624-3632

system. The position of impurity absorption bands in the fine structure is calculated for low concentrations on the basis of the cluster representation. A computer calculation was made using the Green's function method for an ordered system, and these results were compared with a concentration dependence for centers of gravity of the bands that were obtained experimentally. It is emphasized that the results show that the notion of a cluster may have independent geometrical and energy interpretations. The presence of geometric bands shows in the energy spectrum only for sufficiently rapidly attenuating interactions between molecules. The naphthalene crystal for which the lowest exciton zones are characterized by short-acting interactions is a good example of this. The presence of similar geometric clusters does not lead to a fine structure of the impurity spectrum in crystals of a different type or of other exciton zones of the naphthalene crystal, where dipole-dipole interactions occur between the molecules, and the presence of such geometrical clusters does not lead to a fine structure of the impurity spectrum. In this case the considerable distance does not make it possible to select independent cluster groups at average concentrations, there occurs a covering of regions of elementary excitation, and the corresponding optical

2/3

USSR

BROUDE, V. L., et al., Fizika Tverdogo Tela, No 12, Dec 71, pp 3624-3632

spectrum is close to the spectrum calculated by the Green's function method. It is only at low concentrations that an additional fine structure in the spectrum is expected in this case. It is noted that the use of more complex samples will lead to more detailed and precise experimental data.

3/3

USSR

BROUDE, V. I.

"Polarization of the Bands in the Absorption Spectra of a Benzene Crystal"

Leningrad, Optika i Spektroskopiya; January, 1971; pp 89-96

ABSTRACT: The author made an analysis of the structure of the absorption spectra of a crystal of benzene in the region of electronic transition  $A_{1g} \rightarrow B_{2u}$  at 4.2°K. Bethe splitting of the vibron bands, due to the participation of doubly degenerate, incompletely symmetrical oscillations was discovered. In conformity with the crystalline structure, the components of this splitting are polarized along the b-axis of the crystal and in the ac-plane. By means of a joint analysis of the polarization of the bands in the region of the purely electronic Davydov multiplet and in the region of the vibron bands, the experimental Bethe splitting, it is possible to make a reliable identification of the principle components of the spectrum of the benzene crystal.

1/1

5341

CSO: 1862-W

- 84 -

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--INFRARED SPECTROSCOPIC STUDY OF THE CHEMISORPTION OF ORGANOSILICON  
COMPOUNDS ON AN AEROSIL SURFACE -U-  
AUTHOR--(05)-~~BEGUN, E.V.~~, KOROLEV, A.YA., VINOGRADOVA, L.M., ARTAMONOVA,  
R.V., MENKOVA, T.V. *B*  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 797-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--IR SPECTRUM, CHEMISORPTION, ORGANOSILICON COMPOUND, SILICA,  
ORGANIC SILANE, CARBENYL COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1197 STEP NO--UR/0076/70/044/003/0797/0799  
CIRC ACCESSION NO--AP0128615  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128615

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERACTION OF TRIMETHYLETHOXY-SILANE (I), TRIMETHYLACETOXY-SILANE (II), AND TRIMETHYLCHLORO-SILANE (III) WITH AEROSIL OF SP. SURFACE 150 M<sup>2</sup> PER G WAS STUDIED. THE SURFACE COMPO. OF TRIMETHYLSILANE GROUPS WAS FOUND, AND ITS CONC. DEPENDENCE ON TEMP. AND TIME WAS STUDIED. I AND III GAVE A HIGH DEGREE OF SURFACE OCCUPATION AT ROOM TEMP., WHILE II PROVIDED A SUFFICIENTLY OCCUPIED MONOLAYER ONLY AT SIMILAR TO 300 DEGREES. TREATING OF II ON AN AEROSIL SURFACE CAUSED THE FORMATION OF A SMALL AMT. OF CARBONYL COMPODS.

UNCLASSIFIED

Hydrobiology

USSR

UDC: 612.815.1+612.019

BERCU, G. R., IL'INSKIY, O. B., and VOLKOVA, N. K., Laboratory of General Reception Physiology (Headed by O. B. Il'inskiy), I. P. Pavlov Institute of Physiology, USSR Academy of Sciences, Leningrad

"Study of Certain Properties of Electrorceptor Structures of the Lateral Line of Black Sea Skates"

Leningrad, Fiziologicheskii zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1499-1505

Abstract: This article is written as the consequence of recent interest in sensory formations of lateral line systems of certain fish for perceiving electrical stimuli. These formations relate particularly to the receptor apparatus of the Lorenzini ampullae in some cartilaginous fish. The experiments in this investigation were performed on Black Sea skates, which are very convenient for studying the ampullae, and had the purpose of casting more light on the divergent opinions in the literature regarding the function of the ampullae apparatus, and clarifying the connection between the sensitivity of the animal and the ampullae. It was found that the skates exhibited high sensitivity to electrical stimuli. Oscillograms of these reactions are shown together with diagrams giving the location of the ampullae in the specimens.

1/2

USSR

ERGUN, G. R., et al., Fiziologicheskii zhurnal SSSR im. I. M. Sechenova, No 10, Vol 58, 1972, pp 1499-1505

The sensitivity of the latter to magnetic fields was also tested, and it was found that the Lorenzini ampullae played an important part in this type of receptivity as well. The authors express their gratitude to the Karadag Division of the Southern Seas Institute of Biology for providing the base for this work.

2/2

1/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--EXAMINATION OF THE FUNCTIONAL CONDITION OF THE THYROTROPIC AREA OF  
THE HYPOTHALAMUS IN EXPERIMENTAL TUBERCULOSIS -U-  
AUTHOR--(02)-BROUN, G.R., KAN, G.S.  
COUNTRY OF INFO--USSR  
SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970,  
VOL 14, N 3, PP 70-71  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--TUBERCULOSIS, BRAIN, RABBIT, THYROID GLAND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/0507 STEP NO--UR/0396/70/014/003/0070/0071  
CIRC ACCESSION NO--AP0126255  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126255

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACUTE EXPERIMENTS WERE CARRIED OUT ON RABBITS. THE FUNCTIONAL CONDITION OF THE ANTERIOR HYPOTHALAMIC AREA WAS STUDIED IN FEEDING THE ANIMALS WITH METHYLTHIOURACIL, AS WELL AS ON THE 3RD, 7TH, 11TH, 15TH AND 20TH 25TH DAYS AFTER THE INFECTION WITH A VIRULENT CULTURE OF MYCOBACTERIUM TUBERCULOSIS. THE PERCENTAGE OF ACTIVE POINTS ALONG THE TUNGSTEN ELECTRODE PASSING THROUGH THE ANTERIOR HYPOTHALAMIC AREA, SERVED AS AN INDEX OF THE FUNCTIONAL CONDITION. THE NUMBER OF ACTIVE POINTS IN THE ANTERIOR HYPOTHALAMIC AREA PROVED TO BE INCREASED BOTH IN FEEDING WITH METHYLTHIOURACIL AND IN INFECTION WITH TUBERCULOSIS. A POSSIBLE ROLE OF HYPOTHALAMUS IN THE MECHANISM OF CHANGES OF THE THYROID GLAND FUNCTION IN TUBERCULOSIS IS SUGGESTED. FACILITY: OTDEL IMMUNOLOGII I EKSPERIMENTAL'NOY PATOLOGII Leningradskogo Nauchno-Issled. Instituta Tuberkuleza.

UNCLASSIFIED

USSR

UDC 533+536.423.1

BERESTENKO, V. M., KOSOV, N. D., BROVANOV, I. S.

"Pressure Change Accompanying Mutual Diffusion in Compressed Gases"

V sb. Fizika (Physics -- Collection of Works), No. 5, Alma-Ata, 1971,  
pp 116-120 (from RZh-Fizika, No 1, Jan 73, Abstract No 1Ye49)

Translation: Pressure changes for eight pairs of gases were measured at different pressures and temperatures with the aid of a two-chamber device with electromagnetic covering of the chambers. The pressure rise in the chambers of the diffusion device increases with a rise in the initial pressure and a drop in temperature. The greatest pressure rise is observed for  $H_2-O_2$  and  $He-CO_2$  mixtures close to the critical region of  $CO_2$ . The pressure change is explained quantitatively by the presence of complexes in heavy gases.  
Authors' abstract.

1/1

USSR

UDC: 8.74

BROVCHENKO, L. A., KALASHNIKOV, V. I., PISAREV, A. P.

"Determination of Distinctive Features by the Method of Random Walks"

Vestn. Khar'kov. politekhn. in-ta (Khar'kov Polytechnical Institute Herald),  
1972, No 61, pp 24-27 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V568)

Translation: The paper deals with the feasibility of using random walks  
over a receptor field to isolate informative features in pattern recognition.  
Organization of the random-walk process is described, and the results of  
modeling are presented. Authors' abstract.

1/1

- 60 -

Acc. Nr: **AP0038103**

**B**

Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rasteniy, 1970, Vol 17, Nr 1,  
pp 31-39

**SUCROSE HYDROLYSIS IN THE FREE SPACE OF LEAF TISSUES  
AND LOCALIZATION OF INVERTASE**

**M. I. BROVCHENKO**

K. A. Timiriachev Institute of Plant Physiology, USSR Academy of Sciences, Moscow

The biochemical activity of the free space (FS) of assimilating tissues as an intermediate zone for flow of sugars from photosynthesizing to conducting cells is investigated. Uniformly labelled  $C^{14}$  — sucrose was absorbed from external solutions by the mesophyll or thin bundles of sugar beet leaves and in this case along with sucrose  $C^{14}$  hexose was detected in the FS of the tissues (40 and 25% respectively). Rapid accumulation of part of the  $C^{14}$  — hexoses in the cells themselves occurs and on their basis resynthesis of asymmetrically labelled  $C^{14}$  — sucrose takes place. A calculation of the total rate of sucrose hydrolysis in the FS of the mesophyll showed that during the first 15 minutes

1/2

REEL/FRA  
19731152

02

AP0038103

over 55% and after 30 minutes over 70% of the  $C^{14}$ —sucrose entering the FS is hydrolyzed. The rate of sucrose hydrolysis in the FS of the thin bundles of leaf plates was also high.  $C^{14}$ —sucrose entering the FS space from the photosynthesizing cells of mesophyll disks kept 5 minutes in light and in  $C^{14}O_2$  was rapidly hydrolyzed. It is concluded that the FS of the mesophyll and thin bundles are zones in which sucrose is hydrolyzed during its movement from assimilating to conducting cells.

Comparative measurements of acidic and neutral invertase showed that the high hydrolytic activity of leaf plate tissues mainly depends on acidic pH 4.9 invertase located in the tissue FS. In mesophyll disks floating in water 30 or more minutes most of the invertase (9—15%) is exuded from the FS to the external solution. The labile form of invertase may be involved in preparation of the FS assimilates prior to their reabsorption by the phloem cells; this requires that the concentration threshold be surmounted. Neutral, pH 6.8 invertase is concentrated within the mesophyll cell in which it causes preliminary decomposition of part of the sucrose produced during photosynthesis. Invertase in mesophyll tissues washed 18 hours in flowing water is not activated. From this it can be concluded that in mesophyll tissues in which sucrose hydrolysis is the main process ensuring transport of the assimilates from the tissues, invertase protein synthesis is not repressed.

2/2

19731153

USSR

UDC 621.375.4

BROVCHENKO, Ye. N., REYNBOT, A. Ye., DOVZHENKO, V. N.

"An Active Low-Frequency RC-Filter"

Kiev, Izvestiya VUZov Radiotekhnika, Vol 15, No 1, Jan 72, pp 130-132

Abstract: An active low-frequency RC-filter is described which realizes a fourth-order transfer function by using identical low-Q elements. The frequency response of the filter approximates a fourth-order Butterworth function which has a maximum Q at the poles of 1.31. The filter can be used in the frequency band up to 20 kHz. Nonuniformity of the frequency response in the passband of the filter is no greater than 3 dB, attenuation when tuned an octave off from the cutoff frequency is at least 20 dB, input impedance is at least 20 k $\Omega$ , output impedance is no more than 500  $\Omega$ , and the maximum input signal is 2V. The transfer function is given along with the coordinates of its poles. A schematic circuit of one possible realization of the filter is presented incorporating three MP15A transistors and a D814D diode. The sequence to be followed in tuning the filter is described. One figure, bibliography of one title.

1/1

USSR

UDC 546.621'21:537.226.1/.2

MIKHEYEV, V. N., BROVIKOV, V. N., and GORDEYEV, S. YA.

"Influence of the Addition of  $\text{Na}_2\text{O}$  on the Dielectric Properties of Aluminum Oxide"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 703-704.

Abstract: Aluminum oxide was produced from oxide hydrate of various purities, and various quantities of caustic soda were added. The dielectric losses of aluminum oxide were found to increase in proportion to the content of the alkali metal. This simple dependence allows the concentration of alkali metals in alundum to be determined from the value of the dielectric loss angle tangent.

1/1

USSR

UDC 546.621'21:537.226.1/.2


MIKHEYEV, V. N., BROVIKOV, V. N., and GORDEYEV, S. YA.

"Influence of the Addition of  $\text{Na}_2\text{O}$  on the Dielectric Properties of Aluminum Oxide"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 703-704.

Abstract: Aluminum oxide was produced from oxide hydrate of various purities, and various quantities of caustic soda were added. The dielectric losses of aluminum oxide were found to increase in proportion to the content of the alkali metal. This simple dependence allows the concentration of alkali metals in aluminum oxide to be determined from the value of the dielectric loss angle tangent.

1/1

1/2 026 UNCLASSIFIED  
TITLE--INFRARED SPECTRA OF ASCHARITES -U-  
AUTHOR-(02)-SUKNEV, V.S., BROYKIN, A.A.   
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 248-54  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS  
TOPIC TAGS--IR SPECTRUM, IRON COMPOUND, MANGANESE COMPOUND, MAGNESIUM  
COMPOUND, BORATE, MINERAL, DEUTERIUM COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/1243  
CIRC ACCESSION NO--AP0116705  
STEP NO--UR/0368/70/012/002/0248/0254  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116705

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA OF NATURAL, SYNTHETIC AND DEUTERATED ASCHARITES AS WELL AS HYDROXYL AND HYDROASCHARITES WERE RECORDED. THE BAND FREQUENCIES FOR MG SUB2 (B SUB2 O SUB4 (OH)) (OH), MG SUB2 NEGATIVE (B SUB2 O SUB4 (OD)) (OD), MN SUB2 (B SUB2 O SUB4 (OH)) (OH), FE SUB2 (B SUB2 O SUB4 (OH)) (OH), MG SUB2 (B SUB2 O SUB4 (OH)) (OH), FE SUB2 (B SUB2 O SUB4 (OH)) (OH), MG SUB2 (B SUB2 O SUB4 (OH)) (OH)NH SUB2 O ARE GIVEN AND DISCUSSED IN DETAIL. THE STRUCTURAL FORMULA FOR ASCHARITE WAS DETD. AS MG SUB2 (B SUB2 O SUB3 (OH) SUB2) O. THE FE AND MN ANALOGUES OF ASCHARITES (THE LATTER ALSO CALLED SUSSEXITE) WERE ALSO INVESTIGATED AND POSITIONS OF BANDS NEAR 570 AND 927 CM PRIME NEGATIVE ARE GIVEN AS FUNCITONS OF FE AND MN CONTENT. FORMULAS ARE DERIVED FOR SPECTRAL DETN. OF FE AND MN.

UNCLASSIFIED

1/2 017  
UNCLASSIFIED  
TITLE--TEMPERATURE FIELD OF AN INFINITE PLATE WITH VARIABLE THERMAL  
PROPERTIES -U- PROCESSING DATE--20NOV70  
AUTHOR--(02)-DEVOCHINA, S.I., BROVKIN, L.A.  
COUNTRY OF INFO--USSR  
SOURCE--INZHENERNO-FIZICHESKIY ZHURNAL, 1970, VOL 18, NR 1, PP 180-183  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--TEMPERATURE DEPENDENCE, NCMOGRAPHY, THERMAL ANALYSIS METHOD,  
MATHEMATIC ANALYSIS, THERMODYNAMICS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1998/0540  
CIRC ACCESSION NO--AP0121212  
STEP NO--UR/0170/70/018/001/0180/0183  
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0121212

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIG. 1. TIME OF HEATING THE SURFACE OF INFINITE PLATE ( $\theta$  EQUALS  $1 - \theta_{\text{SUBN}}$ ) AT  $T (X, 0)$  EQUALS TO  $T_{\text{SUBO}}$  IN MEDIUM WITH  $T_{\text{SUBO}}$  EQUAL  $\text{CONST } F_1$  THERMAL PARAMETERS OF BODY ARE PREDICTED BY EQUATIONS. FIG. 2. TIME OF HEATING MIDDLE PLANE OF PLATE ( $\theta$  EQUALS  $1 - \theta_{\text{SUBU}}$ ). CONDITIONS AND THERMAL PARAMETERS THE SAME AS IN FIG. 1. SUMMARY. THE NOMOGRAMS PROPOSED IN THE PAPER ALLOW CALCULATION OF THE TEMPERATURE FIELDS OF THE BODIES WITH ACCOUNT FOR THE TEMPERATURE DEPENDENCE OF THE THERMO PHYSICAL COEFFICIENTS. THE ERROR IN USING THE NOMOGRAMS WAS BY THE ORDER LESS THAN THAT IN GENERALLY ADOPTED ENGINEERING CALCULATION AT MEAN CONSTANTS.

UNCLASSIFIED

USSR

UDC 681.178

PEREVERZEV, B. A., ShERSHAKOV, A. P., BROVKIN, V. A. and UVAROVA, N. G.

"A Device for Monitoring Breaks in a Sequence of Arriving Signals"

USSR Author's Certificate, Class H 04 1 13/12, No 339011, filed 24 July 70  
published 8 June 72 (RZh-Avtomatika Telemechanika i Vychislitel'naya Tekhnika,  
No 3, Mar 73, Abstract No 3 A351P)

Translation: A device is proposed for monitoring breaks in a sequence of arriving signals. The device contains two polarized, dual-winding relays and an emergency relay. One of the outputs of the relay windings is connected to a buss of the power supply. The reliability of operation of the device is improved by the installation of a flip-flop, the counting input of which is connected to the other outputs of the windings of the polarized relays through divider diodes. The other output of the emergency relay winding is connected through the parallel connecting contacts of the polarized relays in series to the other buss of the power supply. One illustration,

1/1

USSR

UDC: 621.375.4

BROYKIN, V. A., ANDREYEV, G. N., SHERSHAKOV, A. P.

"An Amplifier"

USSR Author's Certificate No 321914, filed 14 Apr 70, published 24 Jan 72  
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7,  
Jul 72, Abstract No 7A80 P)

Translation: A low-frequency amplifier is proposed which contains input, pre-output, and output stages based on transistors connected in a common emitter circuit, and also a feedback circuit between the input and output stages. To improve the operating stability of the amplifier and increase its efficiency, the collector of the transistor in the output stage is connected to the common line through a parallel network, one branch of which is comprised of two series-connected resistors between which a feedback circuit is connected, and to a grounded capacitor; the other branch of the parallel network is comprised of a load resistor and a grounded capacitor connected in series. The other capacitor plates are interconnected by an additional resistor. One illustration.

1/1

Oscillators and Modulators

USSR

UDC 621.373.43

BROVKIN, V. A., PEREVENZEV, B. A., ANDREYEV, C. H.

"A Very Low Frequency Pulse Oscillator"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztzy, tovarnyye znaki,  
No 24, Aug 71, Author's Certificate No 311381, Division H, filed 1 Oct  
69, published 9 Aug 71, p 209

Translation: This Author's Certificate introduces a very low frequency pulse oscillator which contains two integrating RC circuits in which a resistor is shunted by a diode for discharge of a capacitance. The generator also contains comparators in which each of the inputs is connected to the output of one of the RC circuits. In addition, the device includes a relay and a two-thyristor flip-flop controlled by the comparators. As a distinguishing feature of the patent, the design of this pulse generator is simplified by connecting the relay winding in the anode circuit of one of the thyristors, electrically decoupling one of the supply circuits of each comparator from the supply circuit of the same polarity for the other comparator and connecting it to the input

1/2

USSR

BROVKIN, V. A., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 24, Aug 71, Author's Certificate No 311381, Division H, filed 1 Oct 69, published 9 Aug 71, p 209

of the RC circuit which is connected to the input of this comparator, and connecting it at the same time to the moving contact of the corresponding contact group of the above-mentioned relay. The fixed contacts of these groups are connected to the oscillator supply circuits. When the input of one of the RC circuits is connected to one of the supply circuits, the input of the other RC circuit is connected to the second supply circuit.

2/2

- 102 -

USSR

UDC 621.382

BROVKIN, YU.N., KOSTYLEV, S.A.

"Stability Criterion of Dipole Domains in Gunn Diodes"

Izv. VUZ SSSR:Radioelektronika, Kiev, Vol XV, No 11, Nov 1972, pp 1507-1511

Abstract: Simple analytical expressions which determine the stability range with respect to the bias of dipole domains as a function of the parameter  $n_{01}$  of a specific specimen are derived for use in engineering calculations of Gunn diodes in various operating conditions. The problem was partially solved in another work [4]. However, it is shown that the results of [4] are correct only in the case of an extremely small value of the parameter  $n_{01}$ , and consequently are not acceptable in practical cases. 2 fig. 6 ref. Received by editors, 19 July 1971.

1/1

USSR

UDC: 621.315.592

BROVKIN, Yu. N., DRAZHAN, A. V., and KOSTYLEV, S. A., Dnepropetrovsk  
Division of the Mechanics Institute

"Some Characteristics of the Prethreshold Field Distribution in  
Gunn Diodes"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1608-  
1609

Abstract: Results are given, in this brief communication, of investigations into the peculiarities of the formation of statistical domains in Gunn oscillators with random heterogeneities. The measurements made involved pulses of  $0.6 \mu s$  with a repetition rate of 20 Hz, using a point potential probe. The specimens were in the form of parallelepipeds, 200-300 microns long and with a cross section of  $0.3 \text{ mm}^2$ , made of monocrystalline GaAs, n-type. For each specimen, measurements were made of the potential distribution along the length of the specimen, the volt-ampere characteristic over the entire length of the specimen, and the local volt-ampere characteristics of individual specimen portions for the two bias polarities. Curves for the distributions and the characteristics

1/2

USSR

BROVKIN, Yu. N., et al, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1608-1609

are reproduced. The authors report observing strong-field regions in which the volt-ampere characteristic remained linear up to fields of 10-15 kV/cm and which are not described in the literature. They express their gratitude to R. G. Shabalina for her assistance in conducting the experiments.

2/2

- 91 -

USSR

UDC 621.352.2

SOKOLOVSKIY, I. I., BROVKIN, YU. N., KOSTYLEV, S. A.

"Microwave Power Attenuation Effect in Gunn Diodes"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 949-953

**Abstract:** The results of an experimental study of a three-centimeter band attenuator made of n-GaAs diodes with  $\mu = 4,500 \text{ cm}^2 \text{ v}^{-1} \text{ sec}^{-1}$ , 100-250 microns long, are described. Attenuation is realized for biases on the diode from 0.8 to 1.4  $E_{\text{thresh}}$ . On the basis of sonde measurements of the potential and the local volt-amplitude characteristics, a physical model was developed which explains the nonlinearity of the volt-amplitude characteristic of the entire specimen in the subthreshold range insuring attenuation of the bias voltages in this segment. In the superthreshold region, the attenuation is realized by external negative conductivity arising in the presence of the Gunn effect. The attenuation range depends on the microwave power level and the off-duty factor of the feed pulses. The causes for this phenomenon are discussed.

It is possible to use Gunn diodes not only for the generation of microwave oscillations but also to create other microwave devices. The nonlinearity of the volt-amplitude characteristic arising from the same physical mechanism but differing with respect to external manifestation in the two bias regions

1/2

USSR

SOKOLOVSKIY, I. I., et al., Izvestiya vuzov SSR, Radioelektronika, Vol XV, No 8, 1972, pp 949-953

(before and after the threshold) by the formation of static domains and external negative conductivity obtained as a result of depression of the domains by the probe signal is used for this purpose. By appropriate selection of the parameters of the specimen and the material it is possible for the described devices to operate on medium and high power levels where the dynamic attenuation range depends on the microwave signal level.

2/2

- 98 -

Acc. Nr:

110049051

Ref. Code: UR0357

PRIMARY SOURCE: Vestnik Oftal'mologii, 1970, Nr 1, pp 43-49

ORBITOTONOMETRY IN THE DIAGNOSIS OF UNILATERAL EXOPHTHALMOS

A. F. Brookina

Summary

Reposition of the eyeball was investigated with the aid of Cooper's orbitotonometer in 8 patients suffering from various orbital affections. Curves characteristic of the most frequently encountered diseases of the orbit (tumours, vascular lesions, exophthalmos of endocrine etiology) were plotted.

111

Ref 2

REEL/FRAME  
19800837

USSR

UDC 539.3

BROVKO, G. L., LENSKIY, V. S., Moscow

"On the Convergence of the Method of Homogeneous Linear Approximations in Problems of the Theory of the Plasticity of Nonhomogeneous Bodies"

Moscow, Prikladnaya Matematika i Mekhanika, No 3, May/Jun 72, pp 519-527

Abstract: The problem of equilibrium is formulated mathematically for a deformable solid whose elastic and plastic characteristics are functions of the coordinates. The elimination of nonlinear terms and terms accounting for the deviation of the elastic moduli from certain constant values leads to the method of linear consecutive approximations, which is similar to the method of elastic solutions. In each approximation a problem of linear elasticity theory is solved for a homogeneous body acted on by imaginary mass and surface forces determined by the previous approximation. The convergence of the method as applied to the first and second boundary value problems is proved through the use of functional analysis. It is noted that bodies and media are in many cases nonhomogeneous with respect to mechanical properties and that such nonhomogeneity arises either during the formation of the material such as hardening from the melt, tempering, aging, etc. or is the result of the presence of nonhomogeneous temperature fields,  
1/2

USSR

BROVKO, G. I., LENSKIY, V. S., Prikladnaya Matematika i Mekhanika, No 3, May/Jun 72, pp 519-527

radioactive irradiation, and other physical and chemical fields. The elastic and plastic characteristics of the material are then functions of the coordinates which are represented either in explicit form, in the case of naturally nonhomogeneous media, or are introduced with the aid of field functions, in the case of an irradiation dose or the degree of austenite transformation in the tempering of steel.

2/2

- 64 -

1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--PMR SPECTRA OF PRODUCTS OF THE REACTIONS OF 1,3,5, TRINITROBENZENE  
AND 2,4,6, TRINITROANISOLE WITH SODIUM METHYLATE -U-  
AUTHOR--(03)-SHEYN, S.M., DRGVKO, V.V., KHMELINSKAYA, A.D.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 781-4 B  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MAGNETIC RESONANCE, SPECTRUM, NITROBENZENE, METHOXY COMPOUND,  
ORGANIC COMPLEX COMPOUND, ORGANOSODIUM COMPOUND, ANISOLE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1945 STEP NO--UR/0366/70/006/004/0781/0784  
CIRC ACCESSION NO--AP0125534  
UNCLASSIFIED

2/2 016

CIRC ACCESSION NO--AP0125534

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE TITLE REACTION GIVES MONOMETHOXY, DIMETHOXY, AND TRIMETHOXY SIGMA COMPLEXES (MEISENHEIMER COMPOS.) OF 1,3,5-TRINITROBENZENE OR 2,4,6-TRINITROBENZENE. PMR SPECTRA SHOWN THAT THE TRIMETHOXY COMPLEXES HAVE 2 NEG. ELEC. CHARGES. THE FORMATION OF LESS STABLE TRINITROMONOMETHOXYPHENYL ANION RADICALS WAS ALSO DETECTED. THE FORMATION OF THE MONOMETHOXY AND DIMETHOXY SIGMA COMPLEXES OCCURS SIMULTANEOUSLY. FACILITY: NOVOSIBIRSK. INST. ORG. KHIM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2 025  
TITLE--ROLE OF THREE BODY FORCES IN THE DYNAMICAL PROPERTIES OF WHITE TIN  
-U-  
AUTHOR--(02)--EROVMAN, E.G., GYORGY, S. B  
COUNTRY OF INFO--USSR  
SOURCE--KFKI (KOZP. FIZ. KUT. INTEZ) (REP.) 1970, KFKI 3, 7 PP  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--TIN, ELASTICITY, ELASTIC MODULUS, OPTIC PROPERTY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1990/1298  
CIRC ACCESSION NO--AP0109382  
STEP NO--HU/0087/70/000/000/0001/0007  
UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0109382

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A MATH. INVESTIGATION WAS MADE ON THE ELASTIC CHARACTERISTICS OF WHITE SN, BY TAKING INTO ACCOUNT THE PRESENCE OF 3 BODY INTERACTIONS BETWEEN THE IONS. THE CALC. SHOWS THAT 3 BODY NONCENTRAL FORCES CONTRIBUTE SUBSTANTIALLY TO THE ELASTIC MODULI AND TO ONE OF THE OPTICAL FREQUENCIES.

FACILITY: I. V. KURCHATOV

INST. AT. ENERGY, MOSCOW, USSR.

UNCLASSIFIED

89

1/2 019 UNCLASSIFIED  
TITLE--A FREQUENCY SELECTION AMPLIFIER -U- B  
AUTHOR--BROVMAN, YA.S., SARKISYAN, S.A.  
COUNTRY OF INFO--USSR  
SOURCE--PATENT NO 262984  
REFERENCE--MOSCOW, OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI, NO  
DATE PUBLISHED--04FEB70  
  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., METHODS AND EQUIPMENT  
TOPIC TAGS--PATENT, ELECTRIC MEASURING INSTRUMENT, FREQUENCY SELECTION,  
ELECTRONIC AMPLIFIER  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/1111 STEP NO--UR/0432/70/000/000/0000/0000  
CIRC ACCESSION NO--AA0112233  
ZZZZZZZZZZZZ UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AA0112233

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES A FREQUENCY SELECTION AMPLIFIER WHICH MAY BE USED IN THE MEASUREMENT SYSTEMS OF BALANCING MACHINE TOOLS. THE UNIT CONTAINS INTEGRATORS, AN INVERTER AND A COMPARISON CIRCUIT. IT DIFFERS BECAUSE TO AUTOMATE THE PROCESS OF BALANCING ROTORS AND REGULATING THE Q OF THE AMPLIFIER, ONE OF ITS INTEGRATORS IS SHUNTED BY A NEGATIVE FEEDBACK CIRCUIT BASED ON TWO RESISTORS WITH A RESISTANCE BOX CONNECTED BETWEEN THEM. THE RESISTANCE BOX IS CONNECTED TO THE COLLECTOR OF THE OUTPUT TRANSISTOR IN THE COMPARISON CIRCUIT, WHILE THE INTEGRATOR IS CONNECTED THROUGH A DIODE AND A FILTER RESISTOR IN PARALLEL WITH THE REFERENCE VOLTAGE SOURCE TO THE BASE OF THE INPUT TRANSISTOR OF THIS SAME COMPARISON CIRCUIT.

UNCLASSIFIED

USSR

B

UDC 621.375.126

BROVMAN, Ya. S., SARKISYAN, S. A., TransCaucasus Affiliate of the Experimental Scientific Research Institute of Metal-Cutting Machine Tools

"A Frequency Selection Amplifier"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrazttsy, Tovarnyye Znaki, No 7, 4 Feb 70, p 46, patent No 262984, filed 7 Aug 68

Translation: This Author's Certificate introduces a frequency selection amplifier which may be used in the measurement systems of balancing machine tools. The unit contains integrators, an inverter and a comparison circuit. It differs because to automate the process of balancing rotors and regulating the Q of the amplifier, one of its integrators is shunted by a negative feedback circuit based on two resistors with a resistance box connected between them. The resistance box is connected to the collector of the output transistor in the comparison circuit, while the integrator is connected through a diode and a filter resistor in parallel with the reference voltage source to the base of the input transistor of this same comparison circuit.

1/1

USSR

BROVMAN, Ye. G.; KAGAN, Yu.; HOLAS, A. (Kurchatov Institute of Atomic Energy)

"Properties of Metallic Hydrogen under Pressure"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; April 1972,  
pp 1492-1501

Abstract: The properties of the metallic phase of hydrogen under pressure are investigated. (A detailed analysis of metallic hydrogen at zero pressure has been presented in a previous paper [Ye. G. Brovman, Yu. Kagan, A. Holas; ZhETF, 61, 2429, 1971]. The static lattice energy and zero point vibrations energy as functions of pressure are considered for a number of concurrent phases. The respective equations of state and thermodynamic potential of the metallic phase are found. This permits one to determine the pressure of transition from the molecular to metallic phase. Various phase transitions which may occur in metallic hydrogen are studied, and it is found that the structure of hydrogen under pressure has tendencies which are peculiar to the liquid phase.

1/1

USSR

KAGAN, Yu.; EROVMAN, Ye. G.; KHOLAS, A.

"Properties of Alkali Metals"

Leningrad, Solid State Physics; April, 1970; pp 1001-13

ABSTRACT: By means of a two-parametric, pseudo potential a number of properties of the alkali metals sodium and potassium were studied: binding energy, moduli of elasticity, their derivatives, equation of state, phonon spectrum, etc. Good agreement with experimental data was observed in all cases.

The article includes 21 equations, 7 figures, and 5 tables. There are 31 bibliographic references.

1/1

1/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--PROPERTIES OF ALKALI METALS -U-  
AUTHOR--(03)-BROYMAN, YE.G., KAGAN, YU.M., KHOLAS, A.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1001-13  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, CHEMISTRY  
TOPIC TAGS--ALKALI METAL, EQUATION OF STATE, SODIUM, POTASSIUM, ELASTIC  
MODULUS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0949 STEP NO--UR/0181/70/012/004/1001/1013  
CIRC ACCESSION NO--AP0121551  
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121551

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BOND ENERGY, ELASTIC MODULI,  
EQUATION OF STATE, AND PHONON SPECTRUM OF NA AND K WERE INVESTIGATED BY  
USING A 2 PARAMETER PSEUDO POTENTIAL. GOOD AGREEMENT WITH EXPTL. DATA  
WAS OBSD.

UNCLASSIFIED

1/2 035  
UNCLASSIFIED  
TITLE--EFFECT OF UNIFORM COMPRESSION ON THE ROTATION EFFECT IN ANTIMONY  
-U-  
AUTHOR--BROYDE, YE.L., TSIDILKOVSKIY, I.M., RODIONOV, K.P.  
COUNTRY OF INFO--USSR  
SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(2), 101-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--COMPRESSIVE STRESS, SINGLE CRYSTAL PROPERTY, ANTIMONY, THERMAL  
EMF, ENERGY SPECTRUM, MAGNETIC FIELD CONFIGURATION, CRYSTAL ORIENTATION,  
HIGH PRESSURE EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1987/0747  
STEP NO--UR/0386/70/011/002/0101/0105  
CIRC ACCESSION NO--AP0104201  
UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104201

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINCE THEORETICAL AND EXPTL. DATA INDICATE THAT COMPRESSION ALTERS THE RATIO BETWEEN THE CRYSTAL AXES AND THE RHOMBOHEDRAL ANGLE OF THE SB UNIT CELL IN SUCH A WAY THAT THE STRUCTURE TENDS TO THE CUBIC TYPE, CURRENT CARRIER SPECTRA SHOULD ALSO BE AFFECTED, AND THE ROTATION EFFECT SHOULD DIMINISH. UNDER THIS PRESUMPTION, THE COMPRESSION ROTATION EFFECT RELATION SHOULD YIELD DIRECT INFORMATION ON THE ENERGY SPECTRA OF CURRENT CARRIERS. AN EXPTL. PROOF OF THE CORRECTNESS OF THIS PRESUMPTION WAS ATTEMPTED. THE THERMOEMF. OF SB SINGLE CRYSTAL. SAMPLES CUT FROM BRIDGMAN GROWN INGOTS WAS MEASURED IN MAGNETIC FIELDS UP TO 3 KOE, PRESSURES UP TO 12 KILOBARS, AND A TEMP. OF 97DEGREESK. WITH MAGNETIC FIELDS ORIENTED ALONG THYC SUB1 AND C SUB2 AXES, A ROTATION EFFECT WAS OBSD. IN THE DIAGONAL COMPONENTS OF THE THERMOEMF. ALPHA SUB22 (H) ALPHA SUB33 (H). IN MAGNETIC FIELDS PARALLEL TO THE TRIGONAL AXIS C SUB3, NO ROTATION EFFECT WAS OBSD. OF ALPHA SUB22 (H). MEASUREMENTS WERE ALSO MADE AT DIFFERENT ORIENTATIONS OF THE TEMP. GRADIENT AND THE MAGNETIC FIELD WITH RESPECT TO THE CRYSTALLOGRAPHIC AXES. DELTA ALPHA-ALPHA SUBO -H CURVES WERE PLOTTED. A MATH. EXPRESSION WAS DERIVED FOR THE EVALUATION OF THE ROTATION EFFECT. THE PRESSURE, DELTA ALPHA-ALPHA SUBO CURVES FOR DIFFERENT ORIENTATIONS OF THE TEMP. GRADIENT AND THE MAGNETIC FIELD INDICATE THAT THE ROTATION EFFECT DIMINISHES AT HIGH PRESSURES. THIS EFFECT IS CONSIDERED TO BE DIRECT EVIDENCE THAT THE ANGLE BETWEEN THE CONST. ENERGY ELLIPSOID AND THE MAJOR BRILLOUIN ZONE AXIS DECREASES WITH INCREASING PRESSURE.

UNCLASSIFIED

1/3 037 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--MORPHOLOGICAL CHANGES IN DENTAL AND SURROUNDING TISSUES IN  
INCREASED DETRITION -U-  
AUTHOR--BROZGOL, A.M. *B*  
COUNTRY OF INFO--USSR  
SOURCE--STOMATOLOGIYA, 1970, VOL 49, NR 3, PP 48-51  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DENTISTRY, TOOTH, JAW, ORAL DISEASE, NECROSIS, WEAR RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1998/0402

STEP NO--UR/0511/70/049/003/0048/0051

CIRC ACCESSION NO--AP0121081

UNCLASSIFIED

2/3 037  
CIRC ACCESSION NO--AP0121081

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MACROSCOPIC AND MICROSCOPIC INVESTIGATION OF 120 DETRITION AFFECTED TEETH AND 119 BLOCKS OF JAWS WITH SIMILAR TEETH REVEALED MORPHOLOGICAL CHANGES IN THE DENTAL AND SURROUNDING TISSUES. THE DIVERSE CHARACTER OF CHANGES DEPENDS UPON FUNCTIONAL OVERLOAD, DEGREE OF DETRITION AND THE DIRECTION OF THE MASTICATORY PRESSURE OF MUSCLES. THE INITIAL STAGE OF DETRITION OF DENTAL CROWNS IS ACCOMPANIED BY HYPEREMIA, INSIGNIFICANT RETICULAR ATROPHY OF THE PULP AND THE PRESENCE OF VACUOLIZATION AREAS OF THE LAYER OF ODONTOBLASTS. AN INSIGNIFICANT PETRIFICATION OF THE PULP IN THE FORM OF INDIVIDUAL DUST PARTICLES AND SMALL CONGLOMERATES. SECONDARY DENTINE IS PREVALENTLY SITUATED IN THE REGION OF HORNS OF THE PULP. ADVANCED STAGES OF PATHOLOGICAL DETRITION ARE CHARACTERIZED BY DIFFUSE, SHARPLY MARKED RETICULAR ATROPHY OF THE CROWN PULP, PRONOUNCED VACUOLIZATION OF THE ODONTOBLAST LAYER. PETRIFICATION INVOLVES SEPARATE AREAS OF THE PULP AND SOMETIMES THE WHOLE PULP. IN A NUMBER OF CASES ONE ENCOUNTERS HYALINOSIS, INFLAMMATORY MANIFESTATIONS, NECROSIS AND NECROBIOSIS OF THE PULP. THE DEPOSITION OF SECONDARY DENTINE SHARPLY DEFORMS THE DENTAL PULP AND CANALS ALMOST TO THEIR COMPLETE OBLITERATION. THE EFFECT OF PRESSURE OF MASTICATORY MUSCLES IN THE HORIZONTAL DIRECTION CAUSES THE FORMATION OF SECONDARY DENTINE PARALLEL TO THE PLANE OF DETRITION. IN PERIODONTAL TISSUES FUNCTIONAL OVERLOAD, IN WHICH THE TRAUMATIC FORCES ARE DIRECTED UNDER AN ACUTE ANGLE TO THE LONGITUDINAL AXIS OF TEETH, LEADS TO SIGNIFICANT ALTERATIONS OF DETRITION AFFECTED TEETH AND PERIODONTAL TISSUES.

UNCLASSIFIED

3/3 037 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC. ACCESSION NO--AP0121081  
ABSTRACT/EXTRACT--FACILITY: MOSKOVSKIY GORODSKOY CHELYUSTNO-LITSEVOY  
GOSPITAL' AND KAFEDRA PROPEDEVTIKI ORTOPEDICHESKOY STOMATOLOGII  
MOSKOVSKOGO MEDITSINSKOGO STOMATOLOG, INSTITUTA.

UNCLASSIFIED

AA0043338

BROZGUL L.I. UR 0482

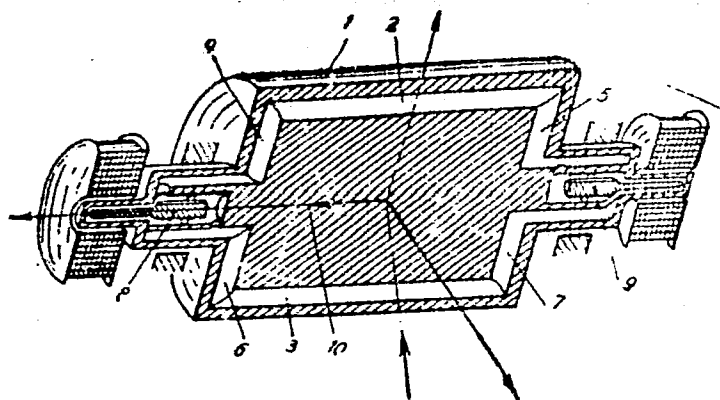
Soviet Inventions Illustrated, Section II Electrical, Derwent,

178508 GYROSCOPE to measure angular velocities and linear accelerations contains a rotor which has two longitudinal bores near its periphery. These are joined by transverse channels at the rotor ends into a closed loop. Two permalloy bars are located in it along the rotor centre line. The vibrating bars measure both the number of revolutions of the rotor and the linear accelerations along the rotor axis.

5.9.64 as 919979/26-10. L.I. BROZGUL (17.9.69) Bul 34/  
30.10.68. Class 42c. Int.Cl.G 01 c.

19761567

AA0043338



2/2

19761568

9

Acc. Nr.: AM0044312

Ref. Code: UR0000

Brozgul', L. I.; Smirnov, Ye. L.

Vibration Gyroscopes (Vibratsionnyye giroskopy) Moscow, Mashinostroyeniye, 1970, 213 pp (SL:1941)

TABLE OF CONTENTS:

Preface		3
Chapter I	General Data on Vibration Gyroscopes	5
II	Rotor Vibration Gyroscopes With Elastic Coupling	14
III	Rotor Vibration Gyroscopes With Combined and Pseudoelastic Coupling	60
IV	Use of Rotor Vibration Gyroscopes	77
V	Vibration Gyroscopes With a Rotor Drive	108
VI	Oscillatory Vibration Gyroscopes	162
Bibliography		213

1/2

4

Reel/Frame

10770878

AM0044312

The book deals with theoretical principles of vibration gyroscopes...  
It was written for engineers and scientists working on designs and investigation of gyroscopic devices and navigation systems. It can be useful also to college professors and senior students.

7/2

SS

19770879

BRUDNO, A. L.

Math  
(Variables)

NEW BOOKS OF 'NAUKA' PUBLISHING HOUSE

[List: Moscow, Vsesoyuznaya Akademiya Nauk SSSR, Russian, Vol 42, No 4, April 1972, pp 147-149]

SO: 51115 5-00

93 1744 74

9-2

Mathematical, Physical and Technical Sciences

Avtomaty i upravlyeniye svernykh avtomaticheskimi apparatami (Automatic Equipment and the Control of Communication Networks). Collection of Articles. Institute of Problems of Data Transmission. Moscow, 1971, 216 pages, 300 copies, 1 r 15 k.

N. I. Apenko and A. S. Dubovik. Prikladnaya optika (Applied Optics). Moscow, 1971, 392 pages, 10,000 copies, 1 r 64 k.

V. I. Arinad. Obshchennyye differentsial'nyye uravneniya (Ordinary Differential Equations). Moscow, 1971, 240 pages, 40,000 copies, 67 k.

A. L. Brudno. Teoriya funktsiy deystviyelnogo perepivaniya (Theory of Functions of a Real Variable). Moscow, 1971, 120 pages, 21,000 copies, 30 k.

N. V. Butenin. Vvedeniye v analiticheskuyu mekhaniku (Introduction to Analytical Mechanics). Moscow, 1971, 264 pages, 25,000 copies, 56 k.

Voprosy prikladnoy teorii funktsiy deystviyelnogo perepivaniya (Questions of the Application of Differential Temperatures in Electrical Engineering). Institute of Electrical Engineering Building. Leningrad, 1971, 104 pages with ill., 2100 copies, 68 k.

D. N. Goryunov, V. B. Kurzin, and V. E. Sazonov. Aerodinamika i teoreticheskiye osnovedeniya (The Aerodynamics of Grids in Nonstationary Flow). Institute of Hydrodynamics, Siberian Department. Novosibirsk, 1971, 272 pages, 1650 copies, 1 r 32 k.

L. I. Dorian, V. S. Salnikov, and M. I. Tsuzko. Kosmicheskoye iuzhnyy v zashchitnykh krayakh (Cosmic Rays in the Earth's Magnetic Field). Moscow, 1971, 400 pages, 2500 copies, 1 r 90 k.

USSR

UDC 681.3.06:51

BRUDNO, A. L.

"ALGOL, Second Edition, Corrected"

ALGOL. Izd. 2-e, Ispr [English Version Above], Moscow, Nauka Press, 1971,  
80 pages, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971,  
Abstract No 10 V770 K).

NO ABSTRACT.

1/1

USSR

UDC 621.396.663

BRUDNYY, E. O., IL'NITSKIY, L. YA.

"Analysis of the Causes of the Occurrence of Errors in the Readings of an Automatic Radio Compass During Banking of Aircraft and Spacecraft"

Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii (Collection of Scientific Works of Kiev Institute of Civil Aviation Engineering), 1971, vyp. 6, pp 3-11 (from RZh-Radiotekhnika, No 5, May 72, Abstract No 5G71)

Translation: A study is made of the electromagnetic field around an aircraft the surface of which is approximated by an ellipsoid of rotation. Formulas are derived which permit investigation of the nature of variation of the radio deviation for various bank angles of the aircraft. There are 5 illustrations.

1/1

- 58 -

USSR

UDC 621.396.663

BRUDNYY, E. O., IL'NITSKIY, L. YA.

"Possible Versions of the Operation of Automatic Middle-Wave Aircraft Radio  
Compasses for a Common Nondirectional Antenna"

Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii (Collection of Scientific  
Works of Kiev Institute of Civil Aviation Engineering), 1971, vyp. 6, pp 11-14  
(from RZh-Radiotekhnika, No 5, May 72, Abstract No 5G72)

Translation: A study is made of the mutual effect of the receivers of radio  
compasses when operating on a common nondirectional antenna. Various methods  
of decoupling them for parallel operation are demonstrated. The basic re-  
quirements on the operation of the receivers on a common antenna are formu-  
lated. There are 2 illustrations and a 2-entry bibliography.

1/1

USSR

UDC: 621.315.592

BRAILOVSKIY, Ye. Yu., BRUDNYY, V. N., KRIVOV, M. A., and RED'KO, V. B.

"Optical Absorption Spectra of n-GaAs Irradiated by Large Integral Electron Beams"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 2075-2077

Abstract: A description is given of experiments in which the optical absorption spectra of n-GaAs in the region of 0.5-1.5 eV, bombarded by electrons of energy 1.6-1.8 MeV at temperatures of 80-100° C, were measured. The original specimens were alloyed with tellurium and had electron concentrations of  $1-2 \cdot 10^{16}/\text{cm}^3$  at  $T = 300^\circ \text{K}$ . Transmission spectra were obtained at temperatures of 80 and 300° K, and the absorption spectra were calculated from them with the reflection coefficient taken at 0.3. As a result of the irradiation, the electron concentration in the specimens dropped, and the Fermi level tended toward the middle of the forbidden zone. Curves are plotted for the specific electron conductivity of the specimens and for the characteristic absorption spectra of the n-GaAs irradiated with electrons at a dosage of  $3.8 \cdot 10^{18}$  electrons per  $\text{cm}^2$ .

1/1

- 1 -

USSR

UDC 537.311.33:546.19'681

KRIVOV, M.A., BRUDNIY, V.N., MALYANOV, S.V., MELEV, V.G., RAMAZANOV, P.YE.,  
RED'KO, V.P.

"Effect Of Electron (1.5 Mev) And Proton (5 Mev) Irradiation On Electrical,  
Optical, And Photoelectric Characteristics Of Gallium Arsenide"

V sb. Radiats. fiz.nemet. kristallov (Radiation Physics Of Nonmetallic Crystals-  
Collection Of Works), Vol 3, Part 2, Kiev, "Nauk.dumka," 1971, pp 16-21 (from  
RZh--Elektronika i yeye primeneniya, No 10, October 1971, Abstract No 10549)

Translation: The paper studies the spectra of radiation defects created by  
electrons (1.5 Mev) and protons (5 Mev) at temperatures close to 300° K, their  
resistance to annealing, and also the effect of Cu impurity on the spectra of  
the levels originating after irradiation. GaAs of n- and p-type was used with  
carrier concentrations of  $5 \cdot 10^{15} - 10^{18} \text{ cm}^{-3}$ . The mobilities for n- and  
p-type specimens at a temperature of 300° K were  $2200-4500 \text{ cm}^2\text{v}^{-1}$  and  $140-330 \text{ cm}^2\text{v}^{-1}\text{sec}^{-1}$ , respectively. The GaAs was doped with Te and Zn and part of  
the material was specially not doped. 3 ill. 7 ref. 1.v.

1/1

- 112 -

1/2 035 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--VOLT AMPERE CHARACTERISTICS OF GALLIUM ARSENIDE P-N TUNNEL  
JUNCTIONS IRRADIATED BY FAST NEUTRONS -U-  
AUTHOR--(05)-ALEKSEYEVA, Z.M., BRUDNYY, V.N., KRIVOV, M.A., MALYANOV, S.V.,  
KHOMCHUK, O.N.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(3), 146-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.  
TOPIC TAGS--VOLT AMPERE CHARACTERISTIC, GALLIUM ARSENIDE PN JUNCTION,  
NEUTRON IRRADIATION, TUNNEL DIODE, FAST NEUTRON, RADIATION DOSE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3005/1218 STEP NO--UR/0139/70/013/003/0146/0149  
CIRC ACCESSION NO--AT0133215  
UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0133215

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LIMITING RADIATION DOSES WERE STUDIED FOR EXPTL. TUNNEL DIODES PREPD. AT DIFFERENT TEMPS. FOR FUSION IN A VACUUM (500-650DEGREES), USING A GAAS BASE ALLOYED WITH ZN UNTIL A CARRIER CONCN. OF (5-6) TIMES  $10^{19}$ -CM  $10^{16}$  WAS REACHED. THE P-N JUNCTION WAS CREATED BY THE FUSION OF SN ON THE (111) SIDE, AND THE OHMIC CONTACT BY THE FUSION OF IN. AS THE RADIATION DOSE IS INCREASED, THERE IS A SMOOTH INCREASE IN THE EXCESS CURRENT. AT A DOSE OF 1 TIMES  $10^{16}$  NEUTRONS-CM  $10^{12}$  THE CHARACTERISTICS CHANGE MARKEDLY; THE SEGMENT WITH A NEG. RESISTANCE DISAPPEARS ON THE RIGHT BRANCH. ISOTHERMAL HEATING AT 473DEGREES K BRINGS ABOUT THE APPEARANCE OF A "HILLY" STRUCTURE AT 0.9-1.1 V ASSOC'D. WITH THE REARRANGEMENT OF GROUP DEFECTS AND PARTIAL ANNEALING OF THE DEFECTS INDUCED BY THE RADIATION. DIODES OBTAINED AT HIGH FUSION TEMPS. HAVE THE GREATEST RADIATION STABILITY. FACILITY: TOMSK. GOSUNIV., TOMSK, USSR.

1/3 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--EFFECT OF ELECTRON IRRADIATION ON PARAMETERS OF GALLIUM ARSENIDE  
PULSED DIODES -U-

AUTHOR--(05)-BRUDNIY, V.A., VILISOV, A.A., VYATKIN, A.P., KRIVOV, M.A.,  
MALYANOV, S.V.

COUNTRY OF INFO--USSR

B

SOURCE--IZV. VYSSH. UCHEN. ZAVED., FIZ, 1970, 13(4), 109-13

DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--GALLIUM ARSENIDE SEMICONDUCTOR, DIODE CIRCUIT, VOLT AMPERE  
CHARACTERISTIC, ELECTRON BOMBARDMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3C03/1473

STEP NO--UR/0139/70/013/004/0109/0113

CIRC ACCESSION NO--AF0130403

UNCLASSIFIED

2/3

025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0130403

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF ELECTRON IRRADN. ON VOLTAGE CURRENT (V-A), VOLTAGE CAPACITANCE, AND PULSE CHARACTERISTICS OF POINT CONTACT PULSED GAAS DIODES WAS STUDIED. THE DIODES WERE PREPD, FROM N TYPE GAAS WITH RESISTIVITIES OF 0.06 AND 0.9 OHM-CM, CARRIER CONCNS. OF (3-5) TIMES  $10^{16}$  AND (1-2) TIMES  $10^{16}$  CM  $PRIME^3$ , AND MOBILITIES OF 4500 AND 5500 CM  $PRIME^2$  V SEC, RESP. AFTER ASSEMBLY COMPLETION, ELEC. FORMING WAS CARRIED OUT BY HALF PERIOD CURRENT PULSES IN THE FORWARD DIRECTION. THE DIODES WERE IRRADIATED BY 1.5-MEV ELECTRONS, AND CAPACITANCE MEASUREMENTS WERE MADE AT 30 MHZ. FROM THE V-A CURVES, IT CAN BE SEEN THAT BREAKDOWN VOLTAGE AND FORWARD RESISTANCE INCREASE, AND RECTIFICATION COEFF. DECREASES UNDER IRRADN. THE CHANGES ARE ATTRIBUTED TO AN INCREASE IN THE RESISTIVITY AT THE EXPENSE OF A DECREASE IN THE CONC. OF CHARGE CARRIERS. CAPACITANCE DECREASES UNDER IRRADN., AND THE DEPTH OF THE CAPACITANCE MODULATION DECREASES AT THE COST OF CHANGES IN IMPURITY DISTRIBUTION IN THE SPACE CHARGE REGION (HIGHLY FORMED DIODES). THIS BEHAVIOR CAN BE EXPLAINED IN THE LIGHT OF THE THEORY DEVELOPED FOR P-N PLANE JUNCTIONS AND SCHOTTKY TYPE BARRIERS. FROM THE PULSE EXPTS., THE RECOVERY TIME ( $T_{SUBRECOV}$ ) UNDER IRRADN. INCREASES FOR SCHOTTKY BARRIERS (SLIGHTLY FORMED) AT THE EXPENSE OF INCREASING  $RC$  ( $R$  AND  $C$  ARE MEAN VALUES OF RESISTANCE AND CAPACITANCE, RESP., IN THE SWITCHING PROCESS). FOR HIGHLY FORMED DIODES, BEHAVIOR OF  $T_{SUBRECOV}$  UNDER IRRADN. IS GOVERNED BY A RELATION BETWEEN LIFETIME OF MINORITY CARRIERS ( $\tau$ ) AND  $BAR RC$ .

UNCLASSIFIED

3/3

025

UNCLASSIFIED

PROCESSING DATE--20NGV70

CIRC ACCESSION NO--AF0150403

ABSTRACT/EXTRACT--AT LOW RADIATION DOSES, A DECREASE OF T SUBRECOV CAN BE  
OBSD. AT THE EXPENSE OF T DECREASE, WHILE AT HIGH DOSES (SIMILAR TO 10  
PRIME16 ELECTRONS-CM PRIME2) T SUBRECCV ALWAYS INCREASES.

FACILITY: SIG. FIZ.-TEKH. INST. IM. KUZNETSOVA, TOMSK, USSR.

UNCLASSIFIED

USSR

BRUDNYY, Yu. A.

"On Permutation of a Smooth Function"

Moscow, Uspekhi Matematicheskikh Nauk, Vol 27, No 2(164),  
Mar/Apr 72, pp 165-166

Abstract: Let  $B$  denote a symmetric space of measurable functions given on the measurable space  $\Omega \subset \mathbb{R}^n$ . If  $\omega \in \Omega$ , then  $\chi_\omega$  denotes  $\|\chi_\omega\|_B$ , where  $\chi$  is a characteristic function of  $\omega$ . Furthermore, let  $\psi$  denote a fundamental function of  $B$ ; i. e.,  $\|\chi_\omega\|_B = \psi(\text{mes } \omega)$ . It is assumed with respect to  $\Omega$  that it is regular in the following sense: there exists a  $\gamma_0 > 0$  such that, for any cube  $Q$  with center on  $\Omega$  and length of edge  $\leq \text{diam } \Omega$ ,

$$\text{mes}(\Omega \cap Q) \geq \gamma_0 \text{mes } Q.$$

The smoothness of a function  $f$  is measured with respect to the rate of its approximation by piecewise-polynomial functions. Namely, let  $\mathcal{Q}_n(\Omega)$  be a family of pairwise nonintersecting cubes having centers on  $\Omega$ , and let  $V$  be a finite-dimensional

1/2

USSR

BRUDNYY, Yu. A., Usp. Mat. Nauk, No 2, 1972, pp 165-166

space of polynomials of  $n$  variables. It is assumed that  $V(\sigma) = \{g: g(Q_s) \in V, \forall Q_s \in \sigma\}$  and  $E_V(f; \sigma) = \inf_{g \in V(\sigma)} \|f - g\|$ , where  $\|f\| = \sup_{Q \in \Omega} |f(Q)|$ . It is assumed furthermore that

$$\omega_V(f; \tau) = \sup_{\sigma} E_V(f; \sigma),$$

where the least upper bound is taken with respect to those  $\sigma$  which consist of equal cubes of volume less than or equal to  $\tau$ . This quantity will be the characteristic of smoothness  $J(B(\Omega))$ .

Finally, it is assumed that  $f^{**}(u) = \sup_{\text{mes } \Omega = \tau} \frac{1}{\text{mes } \Omega} \int_{\Omega} |f| dz$ ,  $u \in \mathbb{R}$ ,  $\text{mes } \Omega$ . Some

possible generalizations and refinements are given for the following theorem: For a given  $f \in B(\Omega)$  there is a polynomial  $f_0 \in V$  such that

$$(f - f_0)^{**}(u) \leq \gamma \int_0^{\text{mes } \Omega} \frac{\omega_V(f; u)}{\psi(u)} \frac{du}{u},$$

where  $\gamma = \gamma(V, n, \psi)$ . Examples of application are given. Bibliography of five titles.

1/2 020 UNCLASSIFIED PROCESSING DATE--02 OCT 70  
TITLE--POLYMERS AND COPOLYMERS BASED ON VINYLPHOSPHONIC ACID  
DIETHYLENIMIDE -U-  
AUTHOR--(04)-NADZHIMUTDINOV, SH., KARGIN, V.A., USMANOV, KH.U., BRUEVICH,  
G.YU.  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 260,687  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--06 JAN 70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--COPOLYMER, ORGANIC PHOSPHORUS COMPOUND, PHOSPHONIC ACID,  
IMIDE, CHEMICAL PATENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/0241 STEP NO--UR/0482/70/000/000/0000/0000  
CIRC ACCESSION NO--AA0111435  
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70  
CIRC ACCESSION NO--AA0111435  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VINYLPHOSPHONIC ACID  
DIETHYLENIMIDE WAS POLYMD. OR COPOLYMD. WITH VINYLPIRROLIDINONE IN THE  
PRESENCE OF RADICAL POLYMN. INITIATORS DURING HEATING TO PROVIDE BIOL.  
ACTIVE PRODUCTS.

UNCLASSIFIED

172 030 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--BASIC PRINCIPLES OF SALT EXCHANGE BETWEEN OCEAN AND ATMOSPHERE -U-

AUTHOR--(02)-BRUEVICH, S.V., KORZH, V.D.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970,190 (5). 1210-1213

DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--OCEAN, ATMOSPHERE, ATMOSPHERIC EVAPORATION, SALT WATER,  
BOUNDARY LAYER, BOUNDARY LAYER TRANSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY PEEL/FRAME--1986/1102

STEP NO--UR/0020/70/190/005/1210/1213

CIRC ACCESSION NO--AT0103020

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--13SEP70

CIRC ACCESSION NO--AT0103020

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRANSFER AND METAMORPHISM OF OCEANIC WATER SALTS IN ATM. OCCURRED BOTH (1) DURING STORM (FOAM FORMATION) AND (2) BY EVAPN. FROM THE CALM SURFACE OF OCEAN AT NORMAL TEMPS. THE SALTS IN (2) ARE DELIVERED INTO ATM. IN MOLECULARLY DISPERSED STATE. THE QUAL. CHANGES IN THE ION SALT COMPN. OF SEA WATER IN BOTH CASES ARE OF THE SAME ORDER BECAUSE THE EVAPN. UNDER STORM AND CALM CONDITIONS OCCURRED IN THE BOUNDARY LAYER BETWEEN OCEAN AND ATM. THE RELATIVE AMTS. OF IONS IN THE OCEANIC WATER (NA IS LARGER MG IS LARGER THAN CA IS LARGER THAN K AND CL IS LARGER THAN SO SUB4 IS LARGER THAN CO SUB3) CONTROL THE SAME ORDER AND IN LAB. DISTILLATES. THE COEFFS. OF ION TRANSFER FOR DISTILLATES AND RAIN WATERS OVER THE OCEAN, IN WHICH THE EFFECT OF RELATIVE AMTS. OF IONS IN UNDERLYING OCEANIC WATER IS EXCLUDED, HAD A DIFFERENT FORM: CA IS LARGER THAN MG, K IS LARGER THAN NA AND CO SUB3 IS LARGER THAN SO SUB4 IS LARGER THAN CL. THIS SEQUENCE OF RELATIVE AMTS. OF IONS IS TYPICAL OF THE BOUNDARY LAYER BETWEEN OCEAN AND ATM. AND REFLECTS THE CHARACTER OF ITS CHEM. COMPN. THIS ORDER AGREES WELL WITH THE VALUES OF ION RADII BY GOLDSCHIMDT AND, IN GENERAL FORM, WITH RULE ON THE ION ADSORPTION BY K. K. GEIROITS (1955), I. E. AS DEPENDENT ON THE VALENCE AND AT. WT.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--INTERACTION OF SULFUR COMPOUNDS OF COAL WITH SOME MINERAL  
SUBSTANCES DURING THERMAL BREAKDOWN -U-  
AUTHOR--(04)-BRUK, A.S., KUTOVOY, P.M., GONCHAROV, V.F., BEZHAKH, ZH.I.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. TVERD. TOPL. 1970, (1), 66-70  
DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS, MECH., IND.,  
CIVIL AND MARINE ENGR  
TOPIC TAGS--SULFUR, COAL, BLAST FURNACE, COKE, IRON, QUALITY CONTROL,  
CALCIUM COMPOUND, CHEMICAL SEPARATION, HYDROGEN SULFIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0756

STEP NO--UR/0467/70/000/001/0066/0070

CIRC ACCESSION NO--AP0107298

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107298

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DECREASING THE S CONTENT IN BLAST FURNACE COKE MAY IMPROVE THE IRON QUALITY. WEST DONETSK COAL, EASILY SINTERING, CONTG. 2.64PERCENT S AND 39.4PERCENT VOLATILES, WAS TREATED VARIOUSLY WITH  $\text{SiO}_2$ ,  $\text{Fe}$ , AND A MAGNETITE CONC., CONTG. 68PERCENT  $\text{Fe}$ , PARTLY AS  $\text{FeO}$ . THE S CONTENT IN THE INITIAL MIXTS., IN THE INTERMEDIATE PRODUCTS OF CONTINUOUS COKING, AND IN THE RESULTING COKE ARE PLOTTED. MAX. FORMATION OF  $\text{H}_2\text{S}$  PROCEEDED THROUGH THE STEPS OF RAPID HEATING AND ISOTHERMAL THERMAL TREATMENT UNDER THE ACTION OF HIGHLY ACTIVE  $\text{H}_2$ . ALL ADDITIVES EXCEPT  $\text{Fe}$  FACILITATED THE GASIFICATION OF S BEFORE CALCINING, WHILE AFTERWARDS CHIEFLY NONVOLATILE S COMPS. WERE FORMED. USE OF HIGH S COALS FOR PREPN. OF BLAST FURNACE COKE IS POSSIBLE ONLY WHEN THE COALS ARE EASILY SINTERING. ADDN. OF CA COMPS. INCREASED THE AMT. OF S REMAINING IN THE COKE, BUT IN THE FORM OF CAS, WHICH WAS NOT DETRIMENTAL TO IRON QUALITY.

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126081

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING 6 ALLOYS WERE INVESTIGATED: FE PLUS 0.75PERCENT CU; FE PLUS 8.25PERCENT MO; FE PLUS 7.63PERCENT W; CU PLUS 1.78PERCENT FE; CU PLUS 11.2PERCENT SN; AND AL PLUS 2.1PERCENT CU. THE SAMPLES WERE SUBJECTED TO HIGH TEMP. DIFFUSION ANNEALING, THEN TO SECONDARY ANNEALING AND QUENCHING. IN ALLOYS QUENCHED FROM THE HOMOGENEOUS REGION THE GRAIN BOUNDARIES ARE MARKEDLY ENRICHED WITH THE SECONDARY COMPONENT AS COMPARED TO THE INTERNAL VOL. OF THE GRAINS. THE EXTENT OF THIS ENRICHMENT, AS A RULE, INCREASES AS THE ALLOY IS CLOSER TO THE SOLY. LIMIT. THE CONCNS. OF THE COMPONENTS AT THE GRAIN BOUNDARIES IN THE ABSENCE OF PPTS. OF THE SECONDARY PHASE ALMOST ALWAYS EXCEEDS THE LIMITING SOLY. OF THE ELEMENT (WHEN FAR REMOVED FROM THE SOLY. LIMIT), THIS POINTS TO THE FORMATION OF AT. GROUPS ALONG THE GRAIN BOUNDARIES. THE NONREPRODUCIBILITY OF THE RESULTS ATTESTS TO THE NONUNIFORM DISTRIBUTION OF THE ELEMENT ALONG THE GRAIN BOUNDARIES. THE REASON FOR THIS MUST PROBABLY BE TRACED BACK TO THE DIFFERENCE IN THE MUTUAL ORIENTATION ANGLE OF THE CRYST. LATTICES AT VARIOUS POINTS OF THE TOUCHING GRAINS. WHEN THIS ANGLE IS 45DEGREES, THE FREE SURFACE ENERGY IS AT ITS MAX., AND THE POINT CONC. OF THE ELEMENT IS THE MOST PROBABLE. ON THE OTHER HAND, AT THOSE POINTS WHERE THE ANGLE IS CLOSE TO 0 OR TO 90DEGREES, THE FREE SURFACE ENERGY IS AT ITS MIN. AN ATTEMPT IS MADE TO EXPLAIN THESE ANOMALIES.

FACILITY: SEV.-ZAPAD. ZAOCH. POLITEKH. INST., LENINGRAD, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--ROLE OF THE INTRACRYSTALLITE DISTRIBUTION OF CARBON IN THE  
DEVELOPMENT OF THE PEARLITE TRANSFORMATION OF AUSTENITE -U-  
AUTHOR-(02)-BRUK, B.I., ZAVYALOV, A.S. *B*

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL, 1970, (1), 245

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--AUSTENITE TRANSFORMATION, BORON INTENSIFIED STEEL, ALLOY  
STEEL, MICROSCOPY, CARBON, SOLID SOLUTION, LANTHANIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1984/0163

STEP NO--UR/0370/70/000/001/0245/0245

CIRC ACCESSION NO--AP0054959

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054959

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AUSTENITE TRANSFORMATION IS INHIBITED IN ALLOYED STEELS BY CARBIDE FORMING AND NONCARBIDFORMING ELEMENTS. THE INCREASED TEMPERING BY MICROSCOPICALLY SMALL ADDNS. OF B AND LANTHANIDES IS DUE TO THEIR SMALL SOLY. IN SOLID SOLN., SO THAT THE C CONTENT AT THE EDGES OF THE GRAINS IS INCREASED.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--HIGH FREQUENCY POLAROGRAPH AND ITS USE -U-  
AUTHOR-(02)-BRUK, B.S., STERNBERG, B.M.  
COUNTRY OF INFO--USSR  
SOURCE--ZAVGO. LAB. 1970, 36(3), 365-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ELECTROCHEMISTRY, POLAROGRAPHY, COPPER, LEAD, HIGH FREQUENCY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0429 STEP NO--UR/0032/70/036/003/0365/0369  
CIRC ACCESSION NO--AP0126182  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126182

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A BLOCK DIAGRAM OF THE HIGH FREQUENCY POLAROGRAPH IS GIVEN. THE POLAROGRAPHIC BEHAVIOR OF CU, PB, AND CD IN 2M ZNSO SUB4 WAS STUDIED AND THE DEPENDENCE ON THE CONCN. OF CL PRIME NEGATIVE AND PH IS DISCUSSED. THESE DATA CONFIRM THE POSSIBILITIES OF USING THIS APP. FOR STUDYING THE KINETICS OF ELECTROCHEM. PROCESSES. FACILITY: SPETS. KONSTR. BYURO TSVETMETAVTCHNIKA, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--GRAPHICAL METHODS FOR SIZING ACTUAL PROCESSES OF EXTRACTING AND  
WASHING SOLID MATERIALS -U-  
AUTHOR--BRUK, O.L. *B*  
COUNTRY OF INFO--USSR  
SOURCE--TEOR. OSN. KHIM. TEKHNOL. 1970, 4(2), 204-13  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
  
TOPIC TAGS--GRAPHIC TECHNIQUE, POROSITY, MASS TRANSFER, PHASE DIAGRAM,  
SOLVENT EXTRACTION, PARTICLE SIZE  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1992/0395 STEP NO--UR/0455/70/004/002/0204/0213  
CIRC ACCESSION NO--AP0111588  
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0111588

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. CHARACTERISTICS OF PHASE DIAGRAMS OF MASS TRANSFER PROCESSES ON POROUS SOLIDS ARE DISCUSSED. GRAPHICAL CONSTRUCTIONS UTILIZING OPERATING LINES ARE SUGGESTED. TRIANGULAR AND RECTANGULAR DIAGRAMS ARE USED FOR IDEAL PROCESSES OF SUCCESSIVE AND COUNTERCURRENT EXTN. AND WASHING OF SOLIDS. IN ACTUAL PROCESSES THE INSTABILITY FACTORS, E.G., MOISTURE CONTENT OF EXTENDED MATERIAL AND ENTRAINMENT OF PARTICLES BY THE FREE LIQ. PHASES ARE CONSIDERED. FACILITY: INST. GORYUCH. ISKOP., MOSCOW, USSR.

UNCLASSIFIED